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Sexually Transmitted Infections among Female Sex Workers in Some Selected Region of Bayelsa State

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Authors' contributions

This paper was carried out with the collaboration of all authors. Author BOE conceived the ideal, collected the samples and analyzed in the laboratory. While author SCI managed literature search and wrote the initial draft. Authors BOE and ECO edited the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

This study investigated some sexually transmitted infections (STIs) among some most at risk population (MAPS) in Bayelsa state. Blood samples were collected from 156 (one hundred and fifty six apparently healthy female sex workers (FSW) aged between 19 to 41 years and screened using standard procedures. Results showed that 9.62% of the FSW in the study area among the various grade had STIs. Of the overall prevalence rate in this present study, the occurrence of Human Immunodeficiency Virus (HIV), hepatitis B surface antigen (HBsAg), hepatitis C virus (HCV) and Syphilis is 8.33%, 0.00%, 0.64% and 0.64% respectively. HIV has the highest occurrence rate, suggesting STIs being cofactors of HIV transmission. There was a low occurrence of STI noted in the study.

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1. INTRODUCTION

Sexually-transmitted infections (STIs) are one of the major public health-related problems and enigma [1]. Globally, over 1 million STIs are acquired on daily basis [2]. According to WHO [2], approximately 357 million new infections with 1 of 4 STIs: chlamydia, gonorrhoea, syphilis and trichomoniasis occurs per annum. It has been estimated that over 500 million people have genital infection with herpes simplex virus (HSV), and 290 million women having human papillomavirus (HPV) infection [2]. Several STIs exist with different causative agents. Over 30 different bacteria, viruses and parasites are known to be transmitted through sexual contact [2]. Some most vital sexually transmitted infections include genital warts (caused by human papillomavirus), genital herpes (caused by herpes simplex virus), hepatitis B (caused by hepatitis B virus), acquired immunodeficiency syndrome (AIDS) (caused by human immunodeficiency virus), trichomoniasis (caused by *Trichomonas vaginalis*) (parasite), chlamydial infections (caused by *Chlamydia trachomatis*), chancroid (caused by *Haemophilus dureyi*), gonorrhea (caused by *Neisseria gonorrhoeae*), Syphilis (caused by *Treponema pallidum*) [2-4].

STIs are mainly transmitted through several approach including sexual intercourse (including heterosexual and homosexual in either anal, vaginal or oral route), blood transfusion, contaminated blood products, unsterilized objects used for piercing and infected mother to her unborn or newborn baby [2,3,5]. STIs could cause both acute and chronic diseases characterized by different symptoms depending on the type including sores or bumps on the genitals or oral or rectal area, painful urination, discharges from the penis, odd-smelling vaginal discharge, uncommon vaginal bleeding, pain during sex, sore, swollen lymph nodes, lower abdominal pain, fever, rash over the trunk, hands or feet [5]. STIs could lead to several complications including pelvic pain, pregnancy complications, eye inflammation, arthritis, pelvic inflammatory disease, infertility, heart disease and certain cancers associated with cervical and rectal area [5], infertility, long-term disability and death in men, women and children [3].

STIs are majorly transmitted by different approaches. As such, several people are at risk to sexually transmitted diseases. Some notable ones include vulnerable children, orphans, female sex workers (FSW), and widows among others. Mandalazi et al. [6] reported that street children are vulnerable to sexual exploitation which predisposes them to risk of HIV and AIDS as well as STIs. Typically, vulnerability is related to the level and quality of information that is available to an individual regarding certain issues and the potentials of curtailing it [7]. Andrade et al. [7] listed personal factors (such as knowledge, education, and access to information), subjective factors (such as values and beliefs) and affective, behavioral, and biological factors as indicators that enhance exposure and susceptibility to risk in vulnerable individuals.

Female Sex Workers are one of the major transmitters of infectious diseases in developing countries. Till date, FSW represent a sub group most affected by HIV/AIDS in Nigeria [8–10]. As such the prevalence of HIV/AIDS among sex workers in Nigeria was estimated at 25% in 2012; while among 15 – 49 years old individuals the prevalence reported was 4% in 2011 [10 – 12].

Female individuals involved in sexual relationship with multiple or several partners are at the risk of acquiring sexually transmitted diseases. The intensity of risk increases when they are involved in unprotected sex. Sexually transmitted diseases are high among adolescent. This is probably due to their modifiable biological, cognitive, psychological, behavioral, and social factors [13,14]. Sales and Irwin [15] opined that adolescence is a developmental phase that is characterized by changes in physical, cognitive, social and emotional perspective of an individual.

Therefore, this study is designed to assess the prevalence of sexually transmitted infections among some most risk population in Bayelsa state, using female sex workers as a case study.

2. MATERIALS AND METHODS

2.1 Study Area

Bayelsa state is one of the Niger Delta states. The state has 8 local government councils. Bayelsa state lies in the sedimentary basin. The State is located at the coastal region with extremely high water table/ level. Fishing is a major occupation of the indigenous people of Bayelsa state. The state is located within

Latitude 4° 15 [1] North and Latitude 5° and 23 [1] South. It is also within longitude 5° 22 [1] West and 6° 45 [1] East. It is bounded by Delta State on the North, Rivers State on the East and the Atlantic Ocean on the Western and Southern parts. The area frequently witnesses multiple flooding events, with high rainfall pattern nearly all year round. The temperature in the region varies between 24 - 37℃ with high relative humidity. The study was carried out in some locations in Yenagoa local government (including Swali, Amarata, Azikoro, Igbogene and Opolo) and southern Ijaw local government area (Amassoma). Due to population growth, industrialization and urbanization the population of the states have increased significantly compared to the 2006 census population figures of about 1.7 million inhabitants.

2.2 Study Population

Subjects for this research were 156 (one hundred and fifty six) apparently healthy brothel based female sex workers at six different locations in Bayelsa State. Information on age, consumption of alcohol, smoking and past/present illnesses were obtained by questionnaires.

2.3 Sample Collection

A standard venipuncture technique was used to collect 3mls of blood from each subject from the anticubital or dorsal vein. The sample was dispensed into a plastic tube and allowed to clot. The sera from the clotted samples were used for HIV 1&2, HBsAg, HCV and VDRL screening using standard procedures.

2.4 Laboratory Analysis

The HBsAg, HCV were screened using Agary Rapid Diagnostic Test Kits. The kit employs lateral flow chromatographic immunoassay, based on the principle of double antibody-sandwich technique. The kit was manufactured by Nantong Egens Biotechnology Co. LTD China (Lot. Nos. 20160519 and 20160518 respectively). VDRL for *Trepanoma pallidum* was analyzed using Solid Rapid Diagnostic Test kits, manufactured by Hangzhou Deangel Biological Engineering Co. LTD China (Lot. No. SMP161201) HIV 1&2 were screened using ALERE Determine Test Kits, manufactured by Alere Medical Co. LTD Japan (Lot. No. 77874k100); positive samples were confirmed using both STAT-PACK and UNI-GOLD HIV 1&2 Test Kits.

2.5 Statistical Analysis

SPSS version 20 was used to carry out the statistical analysis. Significance was established at P=0.05.

3. RESULTS AND DISCUSSION

The results showed that 9.62% of the FSW in the study area among the various grade had sexually transmitted diseases (Fig. 1). The prevalence rate is slightly lower than the values previously reported by Ohene and Akoto [14] reported that 12% of Ghanaian women 15 – 24 years have sexually transmitted infections. Of the overall prevalence rate in this present study, the occurrence of HIV, HBsAg, HCV and VDRL is 8.33%, 0.00%, 0.64% and 0.64% respectively (Fig. 2). The findings showed that the likelihood of syphilis based on the venereal disease research laboratory (VDRL) result is very low among the target population. This trend is also applicable for hepatitis C virus. HCV is typically spread through contact with an infected person's blood via genital sores or cuts. Other authors have severally reported prevalence rate for some common STIs. For instance, Kumarasamy et al. [16] reported sexually transmitted infection prevalence of 50%, 11%, 6% for herpes simplex virus, syphilis and *Trichomonas vaginalis* in South India women at risk of HIV infection. Paz-Bailey et al. [17] reported HIV prevalence of 17.3% among adult female sex workers in US. Magnani et al. [18] reported prevalence of among direct and indirect FSW in Indonesia as 10.5% and 4.9% respectively (HIV), 35.6% and 28.7% respectively (chlamydia), 31.8% and 14.3% respectively (gonorrhea) and 7.3% and 3.5% respectively (active syphilis).

Among the various infections, HIV had the highest occurrence rate. This could be due to the fact that sexually transmitted infections (STIs) are cofactors of HIV transmission [16]. Furthermore, HIV and STIs are linked in that both are transmitted by unprotected sexual behavior, the presence of an STI can facilitate the acquisition and transmission of HIV infection, and some STI pathogens may be more virulent in the presence of HIV-related immunodeficiency [8]. Low occurrence rate of HCV suggest that the FSW practice safe and hygienic method.

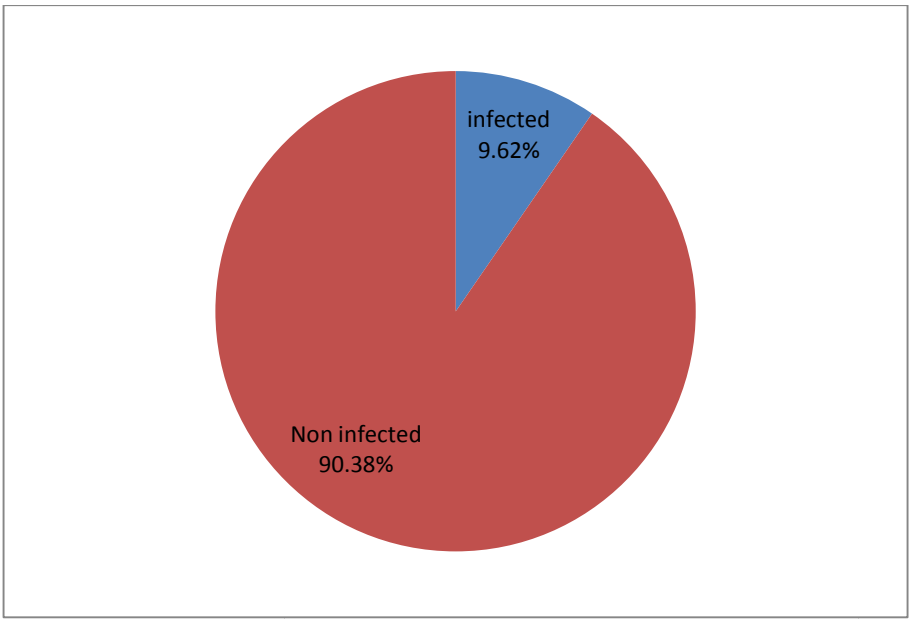

Fig. 1. Occurrence rate of sexually transmitted diseases among FSW in Bayelsa state

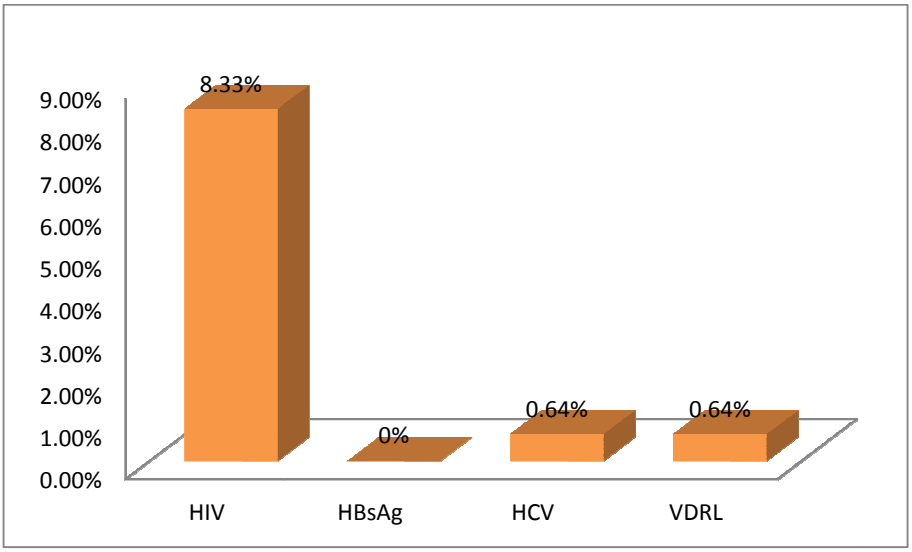

Fig. 2. Occurrence rate of some sexually transmitted infections among FSW in Bayelsa state

Table 1. Occurrence of HIV among different age grades of FSW in Bayelsa state

Age grade	Total no of people	No of people infected with HIV (%)
16 – 20	19	1 (5.26)
21 – 25	64	5 (7.81)
26 – 30	34	2 (5.88)
31 – 35	24	3 (12.5)
36 – 40	12	1 (8.33)
41 – 45	3	1 (33.33)

HIV had the highest occurrence rate among the FSW. The occurrence of HIV among the FSW according to Age is presented in Table 1. The number of persons infected with HIV/AIDs and their percentages were 1 (5.26%), 5(7.81%), 2(5.88%), 3(12.5%), 1(8.33%) and 1(33.33%) for age group 16-20, 21-25, 26-30, 31-35, 36-40 and 41 - 45 respectively. Basically, there was no significant difference (P>0.05) among the various age grades. The result also showed that most of the FSW are within 21 – 30 years of age representing 78.21% of the study population. As such, the likelihood of STI in the target population falls with the age grade. According to MFMER [5], about 50% of STIs occur in people between the ages of 15 and 24.

4. CONCLUSION

This study investigated some STIs among some most at risk population in Bayelsa stat using female sex workers (FSW) as a case study. The findings showed that 9.62% of the FSW had STIs including HIV (8.33%), HBsAg (0.00%), HCV (0.64%) and VDRL (0.64%). The study concludes that a good percentage of the FSW within the study area are practicing safe sex and taking adequate care of themselves.

CONSENT

All the participants signed informed consent.

ETHICAL APPROVAL

Institutional ethical clearance from the ethics committee of FMC Yenagoa.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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